the theoretical expectation. For an emission frequency N of the vapour will now be converted, across the lines of force, into absorption frequencies $N+n$, N, and $N-n$. The first and last being for vertical vibrations, and the central one for horizontal vibrations. If, therefore, the plane of polarisation of the incident light (arc lamp) be inclined at any angle a to the vertical, its horizontal component will be absorbed by the vapour for the frequency N, and its vertical component for the frequencies $N+n$ and $N-n$. The other components will be transmitted, and being vertical and horizontal respectively, and not being of the same period, they cannot be extinguished by a nicol set to quench light polarised at an angle a to the vertical. When the incident light is polarised in a vertical plane, however, or in a horizontal plane, the analysing nicol can quench the transmitted light, and the lines do not light up in the spectroscope. The writer has found on trial that the expectation of theory is realised, and that when the polariser is inclined to the vertical the phenomenon takes place across the lines of force as in Righi's experiment along the lines of force.[1]

Many other interesting points deserve notice, such as Prof. G. F. Fitzgerald's theory connecting the Faraday effect with the Zeeman effect; but want of space compels us to close the present account of the work done in this field during the past year. We may just mention, in conclusion, that the Faraday effect in gases has been placed in strong evidence by an interesting experiment due to MM. Macaluso and Corbino (*Comptes rendus*, t. 127, p. 548, 1898), which depends for its explanation on the fact that the rotatory power of a substance increases enormously as the frequency of the transmitted light approaches that of an absorption band of the substance through which it is transmitted.

THOMAS PRESTON.

RECENT WORK IN COMPARATIVE MYOLOGY.

THE introduction of biology into medical education, productive of such good effects, has been in few departments more beneficial than in that of comparative anatomy; and we desire to call attention to the present aspect of one outcome of this, which appears to us a direct result of the adoption by the surgical anatomist of the comparative method, and to be full of promise for the future.

Our remarks are prompted by a paper which has recently appeared in the *Proceedings* of the Zoological Society, as the completion of an extensive study of the comparative myology of the terrestrial carnivora, by Prof. Bertram Windle and Mr. F. G. Parsons, a most laborious piece of work, involving the careful dissection of close upon one hundred individuals representative of the leading carnivorous families. Of desultory descriptions of the myology of individual mammals we have long had enough, and it is the merit of the two anatomists named to have attacked the subject in a thoroughly systematic manner, transcending that of most of their predecessors. Incorporating with their own extensive observations the sum of our previous knowledge, by carefully classifying the muscles, dealing with them in sets, and tabulating their relationships where necessary in a manner permitting of ready reference, they have now laid the foundation of a really comprehensive system of recording myological facts. The paper to which we refer is serial with others which its authors have published on the Rodentia and Marsupialia, either individually or together; and perusal of the series leads us to believe that in finally deciding the zoological position of some of the more anomalous mammalian forms the study of the muscles may yet play a not unimportant part. We welcome thus, for example, the conclusion of one of the authors that the Jerboas are allied to the Myomorpha as insisted upon by Winge; and the fact that in other respects they are in agreement with his recent work in the classification of the Mammalia, the value and importance of which has been by no means sufficiently appreciated in this country.

In having access to the collections of the Zoological Society, Royal College of Surgeons Museum, and other London institutions, our authors command a wealth of material unobtainable elsewhere, and they are thus enabled not merely to record facts of adult anatomy, but, by comparing individuals of species, to approximately determine the limitations of individual variation. Accurate observations, when systematically arranged, have a permanent value in the progress of science; and, confessing to an admiration of the laborious persistence with which our authors have persevered in their task, we sincerely hope they will continue it until each and every order of Mammals shall have been investigated.

REV. BARTHOLOMEW PRICE, F.R.S.

THE death of the Rev. Bartholomew Price, F.R.S., on Thursday last, deprives the University of Oxford of one who worked long and loyally for its welfare. He took a most active part in the business of the University and of his College, and on many occasions helped to further the interests of science at Oxford. For these labours and for his attractive personal qualities he will be long remembered by many old pupils and friends.

Dr. Price was born in 1818 at Coln St. Dennis, Gloucestershire, and was educated privately at Pembroke College, whence he obtained a first class in mathematics in 1840. He gained the University Mathematical Scholarship in 1842, and two years later was elected Fellow of his College. In 1844 he became tutor, and nine years afterwards Sedleian Professor of Natural Philosophy. In 1852 appeared the first volume of his elaborate work on the infinitesimal calculus, dealing with the differential calculus; the second, on the integral calculus and calculus of variations, was published in 1854; the third, on statics and dynamics of a particle, appeared in 1856; and the last of the four, on the dynamics of material systems, was published in 1862. This treatise obtained for him a considerable reputation in the mathematical world; but his principal work in life was practical, and he will be remembered rather as the active secretary of the University Press during the years of its first great activities after the death of Dean Gaisford, than as a Mathematical Professor. Prof. Price resigned the secretaryship of the Clarendon Press in 1885, when he was succeeded by Mr. P. Lyttelton Gell, who held the post till a few months ago.

Dr. Price was appointed Sedleian professor of natural philosophy at Oxford in 1853, and he only retired from his post in June last, upon attaining his eightieth year. The event was commemorated by a dinner, at which numerous old pupils and others showed the esteem in which they held their counsellor and friend. For many years, both before and after his appointment to the chair of Natural Philosophy, the greater part of the mathematical teaching of the University was in his hands. He was one of the public examiners in mathematical and physical sciences eleven times in twenty-four years, and his works on the differential and integral calculus, &c., were for long the recognised text-books.

Dr. Price was elected a Fellow of the Royal Society in 1852, and he served on the Council of the Society no less than five times. He also served on the Royal Com-

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[1] Prof. Righi's elegant experiment was brought before the notice of the British Association in September last by Prof. S. P. Thompson, and three or four days afterwards, with kind permission, I made the observations here described in Prof. Barrett's laboratory in the Royal College of Science, Dublin.

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mission to inquire into property and incomes of the Universities of Oxford and Cambridge. He was a Curator of the Bodleian Library, an honorary Fellow of Queen's College, a member of the governing body of Winchester College, and a visitor of the Greenwich Observatory. He was appointed Master of Pembroke College in 1891.

By his remarkable diligence and geniality, and his services in furthering scientific interests at Oxford, Prof. Price became a distinguished feature of his University, where his death will be deeply regretted.

NOTES.

Science is to be congratulated that two well-known workers for its advancement are included in the list of New Year honours. We refer to Prof. W. C. Roberts-Austen, who has been promoted from the rank of Companion of the Order of the Bath (C.B.) to a Knight Commandership (K.C.B.), and Mr. W. T. Thiselton-Dyer, who has been raised to the rank of Knight Commander of the Order of St. Michael and St. George (K.C.M.G.). Two distinguished members of the medical profession have had honours conferred upon them—Sir Henry Thompson receiving the dignity of a baronetcy, and Dr. Hermann Weber the honour of knighthood. Mr. J. F. Flannery, ex-President of the Institute of Marine Engineers, has also been knighted.

The recent retirement of Sir John Evans from the Treasurership of the Royal Society, after a period of service of twenty years, has given an opportunity for Fellows of the Society to show their appreciation of the efficient manner in which he discharged the duties of his office. It is proposed to have his portrait painted in oil colours, and to hang it on the walls of the Society's apartments at Burlington House. This would be an appropriate form of recognition of the long association of the Treasurer with the interests of the Society. A number of subscriptions have already been received, and any Fellows of the Society who wish to contribute should send their donations to the Assistant Secretary.

A telegram from Sydney has been received at the Royal Society stating that the boring into the coral at Funafuti had been discontinued on reaching a depth of 1114 feet. An account of recent operations at Funafuti appeared in Nature of November 3, 1898 (p. 22).

At St. Petersburg, last week, a Pan-Russian congress of climatology, hydrology, and balneology was opened by the Grand Duke Paul, as president of the Society for the Preservation of Public Health, for the discussion of means of improving and better utilising the health resorts, bathing places, and mineral waters which now abound in various parts of the empire, especially in the Crimea and the Caucasus.

The French Government is about to adopt precautionary measures against the introduction of the San José scale into France. Decrees will be issued prohibiting the importation of trees, shrubs and plants from the United States, and requiring an inspection of all fruits, fresh and dried, at the point of landing in France.

The death of Dr. John Stillwell Schanck, emeritus professor of chemistry and hygiene in Princeton University, is recorded in *Science*. Dr. Schanck was born in 1817, and began the practice of medicine at Princeton in 1843. In 1847 he was made lecturer in zoology at the College, and in 1856 was elected professor of chemistry, to which the chair of natural history was added in 1869. In 1874 the professorship was limited to chemistry, and from 1885 until he was made emeritus professor, in 1892, his chair was entitled chemistry and hygiene.

M. Maurice Lévy has been elected Vice-President of the Paris Academy of Sciences for the current year, in succession to M. van Tiegham, who passes to the presidential fauteuil.

In the report of the meeting of the Kent Coal Company (*Standard*, December 24), the Chairman is stated to have said that "if there was coal in Kent it must affect that Company for good. If there was not, then every scientific man had been wrong. He did not think that could be." The Dover boring has certainly proved the presence of coal-measures in Kent, but no scientific man can say how far these underground coal-measures extend.

The *Electrical Review* announces that a competition has just been opened by the Swiss Society of Chemical Industry for a treatise which shall be of service in aiding the development of the electro-chemical industry in Switzerland. A premium of 2000 francs (80*l.*) is being offered to the author of the work which shall be adjudged the best of those sent in. All competitors must send in their work by May 1, 1900, to Herr Dr. Henry Schaeppi, president, Die Schweizerische Gesellschaft für Chemische Industrie, Mitlödi, Switzerland, from whom full particulars of the competition may be obtained.

It is announced by the *British Medical Journal* that an international congress on tuberculosis and the methods for combating it will be held in Berlin from May 23 to 27. The Imperial Chancellor, Prince Hohenlohe, will preside, and will be supported by an influential Committee, headed by the Duke of Ratibon and Prof. von Leyden. Five divisions of the subject have been agreed on: (1) propagation, (2) etiology, (3) prophylaxis. (4) therapeutics, (5) sanatoria. Each of these questions will be introduced by a short and concise address, so as to leave ample time for free discussion and debate.

The twenty-sixth annual dinner of old students of the Royal School of Mines will take place at the Hotel Cecil on Friday, January 27. The chair will be taken by Mr. F. W. Harbord. Tickets may be obtained from Mr. H. G. Graves, 5 Robert Street, Adelphi, London, W.C.

Mr. G. E. Lumsden informs us that he has been asked by the President of the Astronomical and Physical Society of Toronto to collect such confirmatory data as are accessible in respect of the contention that associated with certain lightning-flashes and displays of aurora, there are black or dark phenomena. He would be glad to obtain evidence upon this subject, and would be prepared to purchase, if necessary, photographs or lantern slides of lightning flashes, where black streaks or other phenomena are undoubtedly present. His address is The Parliament Buildings, Toronto, Canada.

Some interesting facts with reference to the mining and minting of gold and silver are mentioned by Mr. Alexander E. Outerbridge, jun., in a paper published in the December *Journal* of the Franklin Institute. It is remarked that notwithstanding the excitement over the Klondike discoveries, the output from that region is insignificant when compared with the total product of the whole country. Statistics show that the State of Colorado alone added twice as much gold to the world's stock in 1897 as did the Klondike region, and several other States largely exceeded the Klondike output. As to the South African gold fields, American mining engineers who have been engaged in developing them, have computed from surveys of the ground and numerous assays of samples of ore taken from different localities and at different depths, that the gold contained in the ore in sight in the district known as the "Rand," or Witwaatersrand, amounts to the enormous value approximately of 800,000,000*l.*, and at the present rate of production it will take half a century to exhaust these deposits, even though no further discoveries be made. Australasia and the

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